Photovoltaic module catalogue **2.2013**

COENERGÍA group

www.coenergia.com

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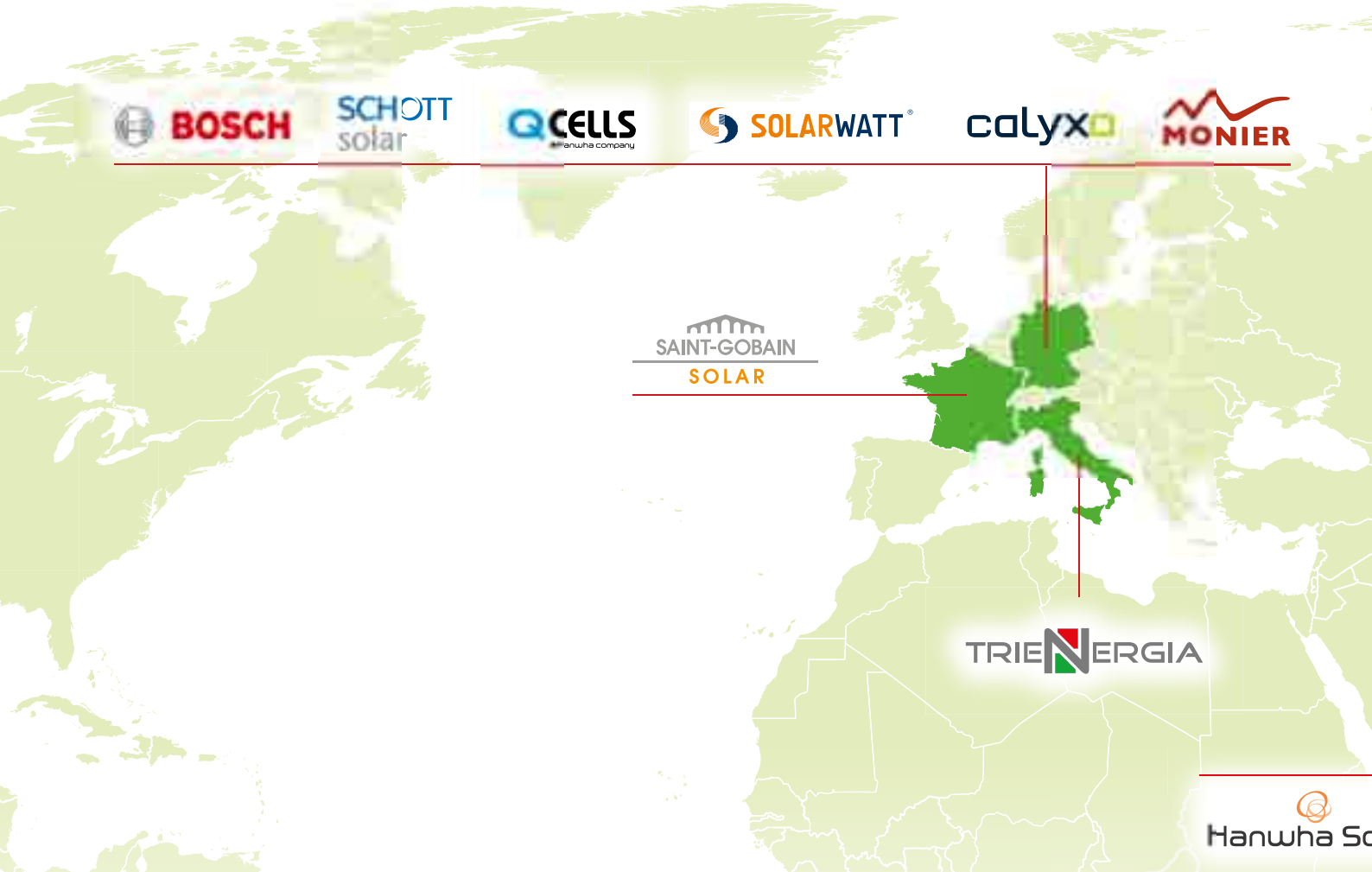
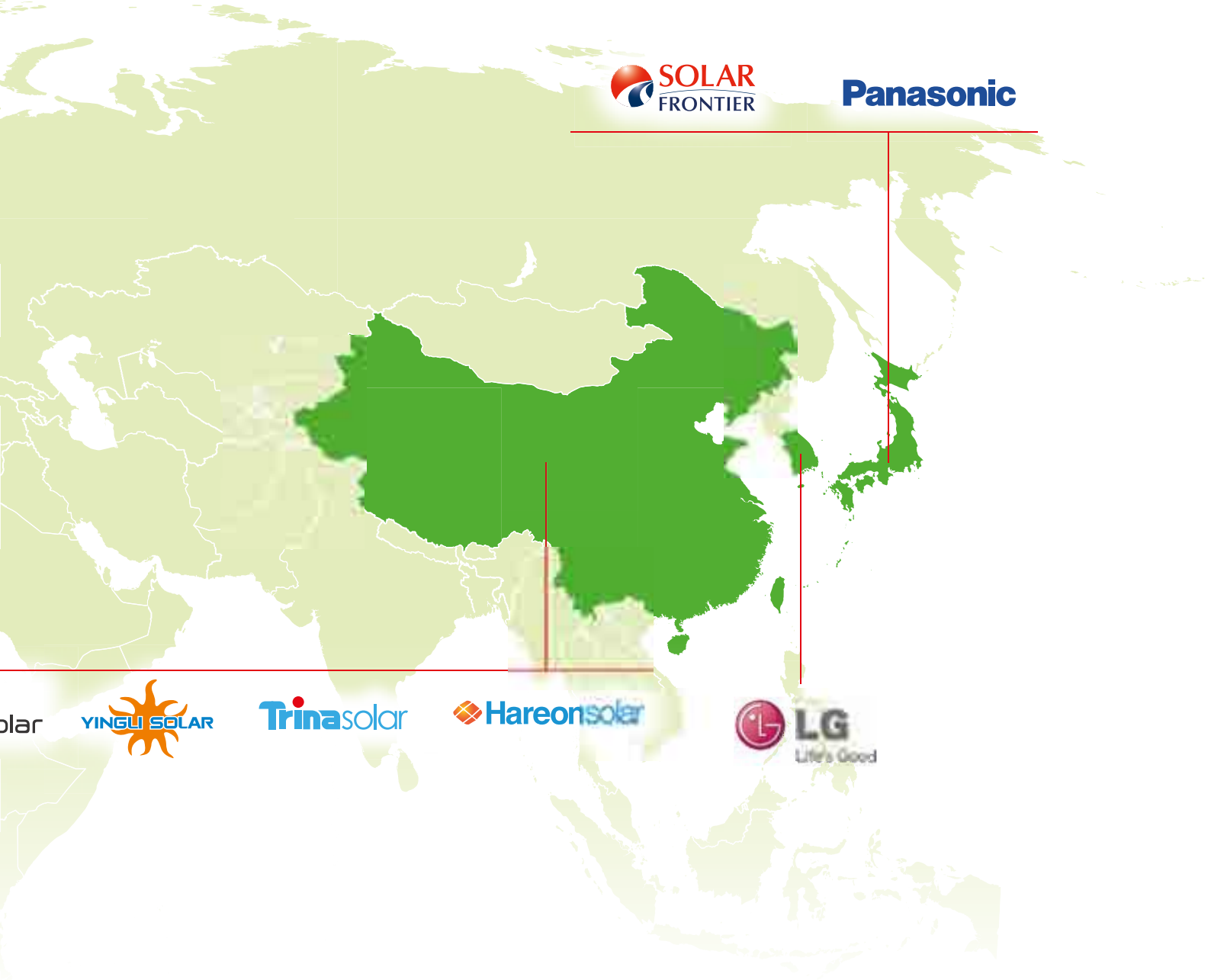
Our partners



Coenergia was the brainchild of a team of entrepreneurs who founded the company in July 2007 following the propagation of the second Italian "Energy Account" legislative decree. The purpose, from the outset, was to build a company for the supply of products and services in the emerging Italian PV market for installers, designers and system integrators. We immediately started working alongside the main manufacturers of top quality PV technological products, completing our offer with in-house production of support structures and extending the catalogue with a range of accessories to supply fully comprehensive grid connected and stand-alone PV systems.



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PBS series

- Photovoltaic polycristalline triangular module with 156x156 mm 28 cells (6")
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	-	-

Code		COE-105PBS	COE-110PBS	COE-115PBS	COE-120PBS
Nominal power	Wp	105	110	115	120
Open circuit voltage (Voc)	V	14,47	14,81	15,15	15,48
Short circuit current (Isc)	A	9,84	10,07	10,30	10,53
Voltage at max power (Vmp)	V	11,44	11,71	11,97	12,24
Current at max power (Imp)	A	9,27	9,49	9,71	9,92
Maximum fuse rating	A	15	15	15	15
Module conversion efficiency	%	11,67	12,22	12,78	13,33
NOCT	°C		48		
Temp. coeff. voltage (Voc)	%/°C		-0,30		
Temp. coeff. current (Isc)	%/°C		0,065		
Temp. coeff. power (Pmax)	%/°C		-0,5		
Tolerance (Pn)	W		0/+3		
System voltage	V		1000		
Maximum load	Pa		5400		
Weight	Kg		12,58		
	(lb)		(27,73 lb)		
Dimensions	mm		1.200 x 1.200 x 40		
	(inch)		(47,24 x 47,24 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

TRIENERGIA

PBS series

- Photovoltaic polycristalline rectangular module with 156x156 mm 56 cells (6")
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	-	-

Code		COE-210PBS	COE-220PBS	COE-230PBS	COE-240PBS
Nominal power	Wp	210	220	230	240
Open circuit voltage (Voc)	V	28,95	29,62	30,29	30,97
Short circuit current (Isc)	A	9,84	10,07	10,30	10,53
Voltage at max power (Vmp)	V	22,88	23,41	23,94	24,47
Current at max power (Imp)	A	9,27	9,49	9,71	9,92
Maximum fuse rating	A	15	15	15	15
Module conversion efficiency	%	13,46	14,10	14,74	15,38
NOCT	°C		48		
Temp. coeff. voltage (Voc)	%/°C		-0,30		
Temp. coeff. current (Isc)	%/°C		0,065		
Temp. coeff. power (Pmax)	%/°C		-0,5		
Tolerance (Pn)	W		0/+3		
System voltage	V		1000		
Maximum load	Pa		5400		
Weight	Kg		20,65		
	(lb)		(45,52 lb)		
Dimensions	mm		1.200 x 1.300 x 40		
	(inch)		(47,24 x 51,18 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

TRIENERGIA

M series

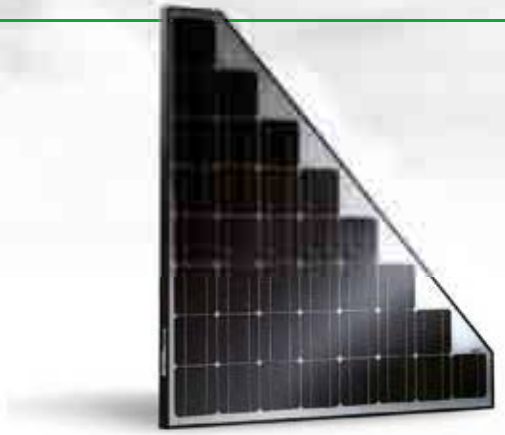
- Rectangular monocrystalline photovoltaic module with 125 x 125 mm (72 x 5") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	-	-

Code		COE-185M	COE-190M	COE-200M
Nominal power	Wp	185	190	200
Open circuit voltage (Voc)	V	44,8	45,20	46,36
Short circuit current (Isc)	A	5,7	5,80	6,00
Voltage at max power (Vmp)	V	35,9	36,30	36,70
Current at max power (Imp)	A	5,15	5,30	5,45
Maximum fuse rating	A	10	10	10
Module conversion efficiency	%	14,8	14,8	15,00
NOCT	°C		48	
Temp. coeff. voltage (Voc)	%/°C		-0,30	
Temp. coeff. current (Isc)	%/°C		0,065	
Temp. coeff. power (Pmax)	%/°C		-0,5	
Tolerance (Pn)	W		0/+3	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		17,0	
	(lb)		(37,48 lb)	
Dimensions	mm		1.200 x 1.070 x 40	
	(inch)		(47,24 x 42,12 x 1,57")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

TRIENERGIA



M series

- Triangular monocrystalline photovoltaic module with 125 x 125 mm (36 x 5") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	-	-

Code		COE-92M	COE-95M	COE-100M
Nominal power	Wp	92,5	95	100
Open circuit voltage (Voc)	V	22,4	22,60	23,18
Short circuit current (Isc)	A	5,7	5,80	6,00
Voltage at max power (Vmp)	V	17,95	18,15	18,35
Current at max power (Imp)	A	5,15	5,30	5,45
Maximum fuse rating	A	10	10	10
Module conversion efficiency	%	12,7	13,1	13,5
NOCT	°C		48	
Temp. coeff. voltage (Voc)	%/°C		-0,30	
Temp. coeff. current (Isc)	%/°C		0,065	
Temp. coeff. power (Pmax)	%/°C		-0,5	
Tolerance (Pn)	W		0/+3	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		10,0	
	(lb)		(22,05 lb)	
Dimensions	mm		1.070 x 1.070 x 40	
	(inch)		(42,12 x 42,12 x 1,57")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

TRIENERGIA

MB series

- Rectangular monocrystalline photovoltaic module with 125 x 125 mm (72 x 5") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

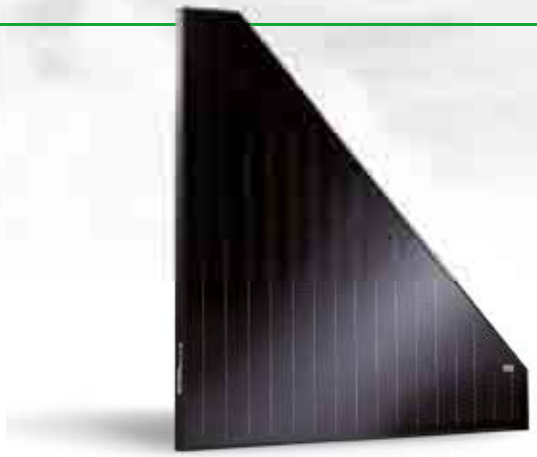
BLACK BACKSHEET

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	-	-

Code		COE-185MB	COE-190MB	COE-200MB
Nominal power	Wp	185	190	200
Open circuit voltage (Voc)	V	44,8	45,20	46,36
Short circuit current (Isc)	A	5,7	5,80	6,00
Voltage at max power (Vmp)	V	35,9	36,30	36,70
Current at max power (Imp)	A	5,15	5,30	5,45
Maximum fuse rating	A	10	10	10
Module conversion efficiency	%	14,8	14,8	15,00
NOCT	°C		48	
Temp. coeff. voltage (Voc)	%/°C		-0,30	
Temp. coeff. current (Isc)	%/°C		0,065	
Temp. coeff. power (Pmax)	%/°C		-0,5	
Tolerance (Pn)	W		0/+3	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		17,0	
	(lb)		(37,48)	
Dimensions	mm		1.200 x 1.070 x 40	
	(inch)		(47,24 x 42,12 x 1,57")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

TRIENERGIA



MB series

- Triangular monocrystalline photovoltaic module with 125 x 125 mm (36 x 5") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

BLACK BACKSHEET

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	-	-

Code		COE-92MB	COE-95MB	COE-100MB
Nominal power	Wp	92,5	95	100
Open circuit voltage (Voc)	V	22,4	26,60	23,18
Short circuit current (Isc)	A	5,7	5,80	6,00
Voltage at max power (Vmp)	V	17,95	18,15	18,35
Current at max power (Imp)	A	5,15	5,30	5,45
Maximum fuse rating	A	10	10	10
Module conversion efficiency	%	12,7	13,1	13,5
NOCT	°C		48	
Temp. coeff. voltage (Voc)	%/°C		-0,30	
Temp. coeff. current (Isc)	%/°C		0,065	
Temp. coeff. power (Pmax)	%/°C		-0,5	
Tolerance (Pn)	W		0/+3	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		10,0	
	(lb)		(22,05 lb)	
Dimensions	mm		1.070 x 1.070 x 40	
	(inch)		(42,12 x 42,12 x 1,57")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

BOSCH

c-Si P 60 series

- Polycrystalline photovoltaic module with 48 x 6" (156 x 156 mm) cells
- Anodized aluminium frame
- MC4/ MC3 connectors (following the production plant)
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		BOSCH230P60	BOSCH235P60	BOSCH240P60
Nominal power	Wp	230	235	240
Open circuit voltage (Voc)	V	37,1	37,3	37,5
Short circuit current (Isc)	A	8,43	8,53	8,64
Voltage at max power (Vmp)	V	29,62	29,83	30,03
Current at max power (Imp)	A	7,88	7,99	8,11
Maximum fuse rating	A	17	17	17
Module conversion efficiency	%	14,0%	14,3%	14,6%
NOCT	°C		46,0	
Temp. coeff. voltage (Voc)	%/°C		-0,31	
Temp. coeff. current (Isc)	%/°C		0,04	
Temp. coeff. power (Pmax)	%/°C		-0,44	
Tolerance (Pn)	W		0/+4,99	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		21	
	(lb)		(46,3 lb)	
Dimensions	mm		1660 x 990 x 50	
	(inch)		(65,35 x 38,98 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

c-Si M 48 series

- Monocrystalline photovoltaic module with 48 x 6" (156 x 156 mm) cells
- Anodized aluminium frame
- Tyco connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		BOSCH190M48	BOSCH195M48	BOSCH200M48	BOSCH205M48
Nominal power	Wp	190	195	200	205
Open circuit voltage (Voc)	V	29,4	29,8	30,2	30,4
Short circuit current (Isc)	A	8,55	8,60	8,65	8,70
Voltage at max power (Vmp)	V	23,4	23,8	24,2	24,4
Current at max power (Imp)	A	8,25	8,30	8,35	8,40
Maximum fuse rating	A	17	17	17	17
Module conversion efficiency	%	14,3	14,7	15,1	15,5
NOCT	°C		48,4		
Temp. coeff. voltage (Voc)	%/°C		-0,32		
Temp. coeff. current (Isc)	%/°C		0,032		
Temp. coeff. power (Pmax)	%/°C		-0,46		
Tolerance (Pn)	W		0/+4,99		
System voltage	V		1000		
Maximum load	Pa		5400		
Weight	Kg		16		
	(lb)		(35,27)		
Dimensions	mm		1343 x 988 x 40		
	(inch)		(52,87 x 38,90 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

BOSCH

c-Si M 60 series 3th generation

- Monocrystalline photovoltaic module with 156 x 156 mm (60 x 6") cells
- Anodized aluminium frame
- MC4/ MC3 connectors (following the production plant)
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		BOSCH235M60	BOSCH240M60	BOSCH245M60
Nominal power	Wp	235	240	245
Open circuit voltage (Voc)	V	37,1	37,4	37,7
Short circuit current (Isc)	A	8,50	8,60	8,70
Voltage at max power (Vmp)	V	29,9	30,0	30,1
Current at max power (Imp)	A	8,00	8,10	8,20
Maximum fuse rating	A	17	17	17
Module conversion efficiency	%	14,3	14,6	14,9
NOCT	°C		48,4	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,032	
Temp. coeff. power (Pmax)	%/°C		-0,46	
Tolerance (Pn)	W		0/+4,99	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		21	
	(lb)		(46,3)	
Dimensions	mm		1660 x 990 x 50	
	(inch)		(65,35 x 38,98 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

BOSCH

c-Si M 60 series 4th generation

- Monocrystalline photovoltaic module with 156 x 156 mm (60 x 6") cells
- Anodized aluminium frame
- MC4/ MC3 connectors (following the production plant)
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		BOSCH250M60	BOSCH255M60	BOSCH260M60
Nominal power	Wp	250	255	260
Open circuit voltage (Voc)	V	37,9	38,0	38,1
Short circuit current (Isc)	A	8,82	8,92	9,02
Voltage at max power (Vmp)	V	30,31	30,51	30,71
Current at max power (Imp)	A	8,25	8,36	8,47
Maximum fuse rating	A	17	17	17
Module conversion efficiency	%	15,2%	15,5%	15,8%
NOCT	°C		48,4	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,032	
Temp. coeff. power (Pmax)	%/°C		-0,46	
Tolerance (Pn)	W		0/+4,99	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		21	
	(lb)		(46,3)	
Dimensions	mm		1660 x 990 x 50	
	(inch)		(65,35 x 38,98 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

BOSCH

c-Si M 60 S series

- Monocrystalline photovoltaic module with 156 x 156 mm (60 x 6") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

BLACK BACKSHEET

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	-	✓	✓

Code		BOSCH235M60S	BOSCH240M60S	BOSCH245M60S
Nominal power	Wp	235	240	245
Open circuit voltage (Voc)	V	37,1	37,4	37,7
Short circuit current (Isc)	A	8,50	8,60	8,70
Voltage at max power (Vmp)	V	29,9	30,0	30,1
Current at max power (Imp)	A	8,00	8,10	8,20
Maximum fuse rating	A	17	17	17
Module conversion efficiency	%	14,3	14,6	14,9
NOCT	°C		49,6	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,032	
Temp. coeff. power (Pmax)	%/°C		-0,46	
Tolerance (Pn)	W		0/+4,99	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		21	
	(lb)		(46,3)	
Dimensions	mm		1660 x 990 x 50	
	(inch)		(65,35 x 38,98 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

BOSCH

c-Si M 60 S series

- Monocrystalline photovoltaic module with 156 x 156 mm (60 x 6") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 90% - 25 years at 80%

BLACK BACKSHEET

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		BOSCH250M60S	BOSCH255M60S	BOSCH260M60S
Nominal power	Wp	250	255	260
Open circuit voltage (Voc)	V	37,9	38	38,1
Short circuit current (Isc)	A	8,82	8,92	9,02
Voltage at max power (Vmp)	V	30,31	30,51	30,71
Current at max power (Imp)	A	8,25	8,36	8,47
Maximum fuse rating	A	17	17	17
Module conversion efficiency	%	15,2	15,5	15,8
NOCT	°C		48,4	
Temp. coeff. voltage (Voc)	%/°C		-0,31	
Temp. coeff. current (Isc)	%/°C		0,031	
Temp. coeff. power (Pmax)	%/°C		-0,44	
Tolerance (Pn)	W		0/+4,99	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		21	
	(lb)		(46,3)	
Dimensions	mm		1.660 x 990 x 50	
	(inch)		(65,35 x 38,98 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Q.PRO G2 series

- Polycrystalline photovoltaic module with 156 x 156 mm (60 x 6") cells
- Anodized aluminium frame
- Y-SOL4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 92% - 25 years at 83%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		Q.PRO 230 G2	Q.PRO 235 G2	Q.PRO 240 G2	Q.PRO 245 G2	Q.PRO 250 G2	Q.PRO 255 G2
Nominal power	Wp	230	235	240	245	250	255
Open circuit voltage (Voc)	V	36,84	37,05	37,27	37,48	37,70	37,99
Short circuit current (Isc)	A	8,54	8,63	8,72	8,81	8,90	9,03
Voltage at max power (Vmp)	V	29,15	29,32	29,49	29,65	29,81	30,04
Current at max power (Imp)	A	7,89	8,01	8,14	8,26	8,39	8,57
Maximum fuse rating	A	20	20	20	20	20	20
Module conversion efficiency	%	13,80	14,10	14,40	14,70	15,00	15,3
NOCT	°C			47			47+_3
Temp. coeff. voltage (Voc)	%/°C			-0,32			-0,33
Temp. coeff. current (Isc)	%/°C			0,04			0,04
Temp. coeff. power (Pmax)	%/°C			-0,41			-0,43
Tolerance (Pn)	W			0/+5			0/+5
System voltage	V			1000			1000
Maximum load	Pa			5400			5400
Weight	Kg			20			19,8
	(lb)			(44,09)			43,6
Dimensions	mm			1.670 x 1.000 x 50			
	(inch)			(65,75 x 39,37 x 1,97")			

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Q CELLS
a Hanwha company

Q.Peak W series

- Monocrystalline photovoltaic module with 60 x 6" (156 x 156 mm) cells
- Anodized aluminium alloy frame
- Y-SOL4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 92% - 25 years at 83%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		Q.PEAK 250 W	Q.PEAK 255 W	Q.PEAK 260 W
Nominal power	Wp	250	255	260
Open circuit voltage (Voc)	V	36,96	37,35	37,73
Short circuit current (Isc)	A	9,04	9,09	9,15
Voltage at max power (Vmp)	V	29,86	30,16	30,45
Current at max power (Imp)	A	8,37	8,46	8,54
Maximum fuse rating	A	20	20	20
Module conversion efficiency	%	15,0	15,3	15,6
NOCT	°C		47	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,04	
Temp. coeff. power (Pmax)	%/°C		-0,46	
Tolerance (Pn)	W		0/+5	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		20	
	(lb)		(44,09)	
Dimensions	mm		1.670 x 1.000 x 50	
	(inch)		(65,75 x 39,37 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Q.Peak B series

- Monocrystalline photovoltaic module with 60 x 6" (156x156 mm) cells
- Black anodized aluminium alloy frame
- Y-SOL4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 92% - 25 years at 83%

BLACK BACKSHEET

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		Q.PEAK 245 B	Q.PEAK 250 B	Q.PEAK 255 B	Q.PEAK 260 B
Nominal power	**Wp**	245	250	255	260
Open circuit voltage (Voc)	**V**	37,64	37,84	38,04	-
Short circuit current (Isc)	**A**	8,63	8,71	8,79	-
Voltage at max power (Vmp)	**V**	30,19	30,45	30,71	-
Current at max power (Imp)	**A**	8,11	8,21	8,30	-
Maximum fuse rating	**A**	20	20	20	20
Module conversion efficiency	**%**	14,7	15,0	15,3	15,6
NOCT	**°C**		47		
Temp. coeff. voltage (Voc)	**%/°C**		-0,32		
Temp. coeff. current (Isc)	**%/°C**		0,04		
Temp. coeff. power (Pmax)	**%/°C**		-0,46		
Tolerance (Pn)	**W**		0/+5		
System voltage	**V**		1000		
Maximum load	**Pa**		5400		
Weight	**Kg**		20		
	(lb)		(44,09)		
Dimensions	**mm**		1.670 x 1.000 x 50		
	(inch)		(65,75 x 39,37 x 1,97")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Q CELLS
a Hanwha company

Q.Peak S series

- Monocrystalline photovoltaic module with 156 x 156 mm (48 x 6") cells
- Anodized aluminium alloy frame
- Y-SOL4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 92% - 25 years at 83%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		QPEAK 195 S	QPEAK 200 S	QPEAK 205 S
Nominal power	Wp	197,5	202,5	207,5
Open circuit voltage (Voc)	V	29,24	29,70	30,18
Short circuit current (Isc)	A	8,99	9,07	9,15
Voltage at max power (Vmp)	V	23,64	24,00	24,36
Current at max power (Imp)	A	8,29	8,42	8,54
Maximum fuse rating	A	20	20	20
Module conversion efficiency	%	14,5%	14,8%	15,2%
NOCT	°C		47,2	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,04	
Temp. coeff. power (Pmax)	%/°C		-0,46	
Tolerance (Pn)	W		0/+5	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		17	
	(lb)		(37,48)	
Dimensions	mm		1348 x 1000 x 50	
	(inch)		(53,07 x 39,37 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Q CELLS
a Hanwha company

Q.Peak SB series

- Monocrystalline photovoltaic module with 156 x 156 mm (48 x 6") cells
- Black anodized aluminium alloy frame
- Y-SOL4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 92% - 25 years at 83%

BLACK BACKSHEET

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	✓

Code		QPEAK 190 SB	QPEAK 195 SB	QPEAK 200 SB
Nominal power	Wp	192,5	197,5	202,5
Open circuit voltage (Voc)	V	29,90	30,20	30,40
Short circuit current (Isc)	A	8,6	8,7	8,8
Voltage at max power (Vmp)	V	23,9	24,30	24,50
Current at max power (Imp)	A	8	8,20	8,3
Maximum fuse rating	A	20	20	20
Module conversion efficiency	%	14,1%	14,5%	14,8%
NOCT	°C		47,2	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,04	
Temp. coeff. power (Pmax)	%/°C		-0,46	
Tolerance (Pn)	W		0/+5	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		17,0	
	(lb)		(37,48)	
Dimensions	mm		1348 x 1000 x 50	
	(inch)		(53,07 x 39,37 x 1,97")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Hanwha Solar

SF Poly X-TRA series

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Anodized aluminium frame
- H4 Amphenol connectors
- Product warranty: 12 years
- Efficiency warranty: 10 years at 90% - 25 years at 83%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Test resist. ammoniaca	Factory inspection	PV Cycle	Cobat
	✓	-	✓	-	✓	-	-	-	-

Code		SF230-30-1P	SF235-30-1P	SF2430-30-1P	SF245-30-1P	SF250-30-1P	SF255-30-1P
Nominal power	Wp	230	235	240	245	250	255
Open circuit voltage (Voc)	V	36,8	36,8	37	37,1	37,2	37,4
Short circuit current (Isc)	A	8,34	8,44	8,54	8,64	8,74	8,85
Voltage at max power (Vmp)	V	30	30,1	30,2	30,3	30,4	30,5
Current at max power (Imp)	A	7,67	7,81	7,95	8,08	8,22	8,35
Maximum fuse rating	A	15	15	15	15	15	15
Module conversion efficiency	%	13,9	14,2	14,5	14,8	15,1	15,4
NOCT	°C	45+3					
Temp. coeff. voltage (Voc)	%/°C	-0,32					
Temp. coeff. current (Isc)	%/°C	0,04					
Temp. coeff. power (Pmax)	%/°C	-0,45					
Tolerance (Pn)	W	0/+5					
System voltage	V	1000					
Maximum load	Pa	5400					
Weight	Kg	20					
	(lb)	(44,09)					
Dimensions	mm	1652 x 1000 x 45					
	(inch)	(65,04 x 39,37 x 1,77")					

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Hanwha Solar

HSL 60 Poly series

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Anodized aluminium frame
- H4 Amphenol connectors
- Product warranty: 12 years
- Efficiency warranty: 10 years at 90% - 25 years at 83%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	-	-	-

Code		HSL235-60P6	HSL240-60P6	HSL245-60P6	HSL250-60P6	HSL255-60P6
Nominal power	Wp	235	240	245	250	255
Open circuit voltage (Voc)	V	36,7	37	37,4	37,7	38
Short circuit current (Isc)	A	8,53	8,63	8,7	8,79	8,89
Voltage at max power (Vmp)	V	29,2	29,6	30,1	30,4	30,8
Current at max power (Imp)	A	8,05	8,11	8,15	8,23	8,29
Maximum fuse rating	A	15	15	15	15	15
Module conversion efficiency	%	14,5	14,8	15,1	15,5	15,8
NOCT	°C			45+3		
Temp. coeff. voltage (Voc)	%/°C			-0,31		
Temp. coeff. current (Isc)	%/°C			0,05		
Temp. coeff. power (Pmax)	%/°C			-0,43		
Tolerance (Pn)	W			0/+5		
System voltage	V			1000		
Maximum load	Pa			7000		
Weight	Kg			19		
	(lb)			(41,89)		
Dimensions	mm			1636 x 988 x 40		
	(inch)			(64,41 x 38,90 x 1,58")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

MonoX S1C series

- Monocrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 12 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	✓	✓

Code		LG250S1C	LG255S1C	LG260S1C
Nominal power	Wp	250	255	260
Open circuit voltage (Voc)	V	37,1	37,2	37,3
Short circuit current (Isc)	A	8,76	8,85	8,94
Voltage at max power (Vmp)	V	29,9	30,0	30,1
Current at max power (Imp)	A	8,37	8,50	8,64
Maximum fuse rating	A	15	15	15
Module conversion efficiency	%	15,5	15,8	16,2
NOCT	°C		43,7	
Temp. coeff. voltage (Voc)	%/°C		-0,338	
Temp. coeff. current (Isc)	%/°C		0,043	
Temp. coeff. power (Pmax)	%/°C		-0,469	
Tolerance (Pn)	%		0/+3	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		19	
	(lb)		(41,89)	
Dimensions	mm		1632 x 986 x 42	
	(inch)		(64,25 x 38,82 x 1,65")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

NEON series

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 90,7% - 25 years at 80,2%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	✓	✓

Code		LG280N1C	LG285N1C	LG290N1C	LG295N1C	LG300N1C
Nominal power	Wp	280	285	290	295	300
Open circuit voltage (Voc)	V	38,9	39	39,2	39,3	39,5
Short circuit current (Isc)	A	9,56	9,68	9,8	9,91	10
Voltage at max power (Vmp)	V	31,5	31,6	31,8	31,9	32
Current at max power (Imp)	A	8,97	9,09	9,19	9,3	9,42
Maximum fuse rating	A	15	15	15	15	15
Module conversion efficiency	%	17,1	17,4	17,7	18	18,3
NOCT	°C			45		
Temp. coeff. voltage (Voc)	%/°C			-0,31		
Temp. coeff. current (Isc)	%/°C			0,03		
Temp. coeff. power (Pmax)	%/°C			-0,42		
Tolerance (Pn)	W			0/+3		
System voltage	V			1000		
Maximum load	Pa			5400		
Weight	Kg			16,8		
	(lb)			(37,04)		
Dimensions	mm			1.640 x 1000 x 35		
	(inch)			(64,57 x 39,37 x 1,38")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

MONIER

Serie InDaX

- Polycrystalline photovoltaic module with 156 x 156 mm (6") cells
- Innovative integration system
- Tyco connectors
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	-

Code		SCHINDAX185	SCHINDAX190	SCHINDAX195
Nominal power	Wp	185	190	195
Open circuit voltage (Voc)	V	29,3	29,5	29,8
Short circuit current (Isc)	A	8,52	8,61	8,71
Voltage at max power (Vmp)	V	23,6	23,9	24,1
Current at max power (Imp)	A	7,97	8,09	8,2
Maximum fuse rating	A	20	20	20
Module conversion efficiency	%	13,1	13,5	13,7
NOCT	°C		47,2	
Temp. coeff. voltage (Voc)	%/°C		-0,32	
Temp. coeff. current (Isc)	%/°C		0,06	
Temp. coeff. power (Pmax)	%/°C		-0,42	
Tolerance (Pn)	W		0/+4,99	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		17	
	(lb)		(37,48)	
Dimensions	mm		1.392 x 999 x 75	
	(inch)		(54,8 x 39,33 x 2,95")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

MONIER

Serie InDaX

- Polycrystalline photovoltaic module with 156 x 156 mm (6") cells
- Innovative integration system
- Tyco connectors
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	✓	-

Code		SCHINDAX230	SCHINDAX235	SCHINDAX240	SCHINDAX245
Nominal power	Wp	230	235	240	245
Open circuit voltage (Voc)	V	36,4	36,6	36,9	37,2
Short circuit current (Isc)	A	8,36	8,45	8,54	8,62
Voltage at max power (Vmp)	V	29,5	29,8	30	30,2
Current at max power (Imp)	A	7,89	7,98	8,08	8,18
Maximum fuse rating	A	20	20	20	20
Module conversion efficiency	%	13,4	13,7	14	14,3
NOCT	°C		47,2		
Temp. coeff. voltage (Voc)	%/°C		-0,32		
Temp. coeff. current (Isc)	%/°C		0,06		
Temp. coeff. power (Pmax)	%/°C		-0,42		
Tolerance (Pn)	W		0/+4,99		
System voltage	V		1000		
Maximum load	Pa		5400		
Weight	Kg		21,5		
	(lb)		(47,4)		
Dimensions	mm		1.720 x 999 x 75		
	(inch)		(67,71 x 39,33 x 2,95")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SOLARWATT®

Easy InP series

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Innovative integration system
- LC4 connectors (suitable MC4)
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 90% 25 years at 80%
- 5 years full protection, extendable up to 12 years

INNOVATIVE INTEGRATED SYSTEM

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	✓	✓	✓	✓	✓	✓	✓

Code		SW245P60EI	SW250P60EI	SW255P60EI
Nominal power	Wp	245	250	255
Open circuit voltage (Voc)	V	37,40	37,60	37,8
Short circuit current (Isc)	A	8,50	8,57	8,62
Voltage at max power (Vmp)	V	30,10	30,30	30,4
Current at max power (Imp)	A	8,14	8,26	8,28
Maximum fuse rating	A	20	20	20
Module conversion efficiency	%	13,4	13,7	14
NOCT	°C	45		45
Temp. coeff. voltage (Voc)	%/°C	-0,33		-0,33
Temp. coeff. current (Isc)	%/°C	0,04		0,05
Temp. coeff. power (Pmax)	%/°C	-0,37		-0,38
Tolerance (Pn)	%	±5		5
System voltage	V	1000		1000
Maximum load	Pa	5400		5400
Weight	Kg	24		
	(lb)	(52,91)		
Dimensions	mm	1764 x 1035 x 47		
	(inch)	(68,74 x 40,75 x 1,85")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SOLARWATT®

Serie Blue 60P

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	✓	✓	✓	-	✓

Code		SW240P60BLUE	SW245P60BLUE	SW250P60BLUE	SW255P60BLUE
Nominal power	Wp	240	245	250	255
Open circuit voltage (Voc)	V	37,2	37,4	37,6	37,8
Short circuit current (Isc)	A	8,5	8,57	8,69	8,77
Voltage at max power (Vmp)	V	29,9	30,1	30,2	30,4
Current at max power (Imp)	A	8,03	8,14	8,28	8,39
Maximum fuse rating	A	20	20	20	20
Module conversion efficiency	%	14,4	14,7	15	15,3
NOCT	°C		45		
Temp. coeff. voltage (Voc)	%/°C		-0,33		
Temp. coeff. current (Isc)	%/°C		0,04		
Temp. coeff. power (Pmax)	%/°C		-0,38		
Tolerance (Pn)	W		0/+5		
System voltage	V		1000		
Maximum load	Pa		5400		
Weight	Kg		19		
	(lb)		(41,89)		
Dimensions	mm		1.680 x 990 x 40		
	(inch)		(66,14 x 38,97 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SCHOTT solar

Protect ASI series

- Thin film photovoltaic module, amorphous technology [a-si]
- Glass / Glass module
- Black anodized aluminium frame
- Tyco connectors
- Product warranty 10 years
- Linear efficiency warranty 10 years at 90% - 30 years at 82,5%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
		-	✓	-	✓	✓	-	✓

Code		SCHOTT ASI 100 DG	SCHOTT ASI 103 DG	SCHOTT ASI 105 DG
Nominal power	Wp	100	103	105
Open circuit voltage (Voc)	V	40,9	41,1	41,1
Short circuit current (Isc)	A	3,93	4,00	4,05
Voltage at max power (Vmp)	V	30,4	30,4	30,5
Current at max power (Imp)	A	3,29	3,39	3,44
Maximum fuse rating	A	10	10	10
Module conversion efficiency	%	6,9	7,1	7,2
NOCT	°C		49,0	
Temp. coeff. voltage (Voc)	%/°C		-0,33	
Temp. coeff. current (Isc)	%/°C		+0,08	
Temp. coeff. power (Pmax)	%/°C		-0,20	
Tolerance (Pn)	W		0/+3	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		22	
	(lb)		(48,5)	
Dimensions	mm		1.308 x 1.108 x 35	
	(inch)		(51,50 x 43,62 x 1,38")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Trinasolar

Serie TSM PC05

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Anodized aluminium frame
- LC4 connectors (suitable MC4)
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	✓	✓	✓	✓	✓	✓	-

Code		TSM225PC05	TSM230PC05	TSM235PC05	TSM240PC05	TSM245PC05
Nominal power	Wp	225	230	235	240	245
Open circuit voltage (Voc)	V	36,9	37	37,1	37,2	37,3
Short circuit current (Isc)	A	8,2	8,26	8,31	8,37	8,47
Voltage at max power (Vmp)	V	29,4	29,8	30,1	30,4	30,7
Current at max power (Imp)	A	7,66	7,72	7,81	7,89	7,98
Maximum fuse rating	A	15	15	15	15	15
Module conversion efficiency	%	13,7	14,1	14,4	14,7	15
NOCT	°C			46		
Temp. coeff. voltage (Voc)	%/°C			-0,32		
Temp. coeff. current (Isc)	%/°C			0,047		
Temp. coeff. power (Pmax)	%/°C			-0,43		
Tolerance (Pn)	W			0/+3		
System voltage	V			1000		
Maximum load	Pa			5400		
Weight	Kg			19,5		
	(lb)			(43,0)		
Dimensions	mm			1.650 x 992 x 40		
	(inch)			(64,95 x 39,05 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Hareonsolar

Serie 3BBHR - 18/Bb-1

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6")
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	✓	✓	✓	✓	✓	✓	-

Code		HR230P	HR235P	HR240P	HR245P	HR250P
Nominal power	Wp	230	235	240	245	250
Open circuit voltage (Voc)	V	36,87	37,07	37,29	37,5	37,72
Short circuit current (Isc)	A	8,47	8,52	8,58	8,64	8,69
Voltage at max power (Vmp)	V	29,01	29,49	29,93	30,18	30,53
Current at max power (Imp)	A	7,93	7,97	8,02	8,12	8,19
Maximum fuse rating	A	15	15	15	15	15
Module conversion efficiency	%	13,84	14,14	14,44	14,74	15,04
NOCT	°C			45		
Temp. coeff. voltage (Voc)	%/°C			-0,32		
Temp. coeff. current (Isc)	%/°C			0,055		
Temp. coeff. power (Pmax)	%/°C			-0,44		
Tolerance (Pn)	W			0/5		
System voltage	V			1000		
Maximum load	Pa			5400		
Weight	Kg			20		
	(lb)			(44,09)		
Dimensions	mm			1662 x 1000 x 45		
	(inch)			(65,43 x 39,37 x 1,77")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

P-29b series

- Polycrystalline photovoltaic module with 60 156 x 156 mm (6") cells
- Anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Test resist. ammoniaca	Factory inspection	PV Cycle	Cobat
	✓	-	✓	✓	✓	✓	-	-	✓

Code		YL 230P-29b	YL 235P-29b	YL 240P-29b	YL 245P-29b	YL250P-29b
Nominal power	Wp	230	235	240	245	250
Open circuit voltage (Voc)	V	37,00	37,00	37,50	37,80	38,4
Short circuit current (Isc)	A	8,40	8,54	8,65	8,63	8,79
Voltage at max power (Vmp)	V	29,50	29,50	29,50	30,20	30,4
Current at max power (Imp)	A	7,80	7,97	8,14	8,11	8,24
Maximum fuse rating	A	15	15	15	15	15
Module conversion efficiency	%	14,10	14,40	14,70	15,00	15,3
NOCT	°C			46		46
Temp. coeff. voltage (Voc)	%/°C			-0,37		-0,33
Temp. coeff. current (Isc)	%/°C			+0,06		0,06
Temp. coeff. power (Pmax)	%/°C			-0,45		-0,45
Tolerance (Pn)	W			0/+5		0/+5
System voltage	V			1000		1000
Maximum load	Pa			5400		5400
Weight	Kg			19,10		
	(lb)			(42,11)		
Dimensions	mm			1.650 x 990 x 40		
	(inch)			(64,57 x 38,98 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

C-30b series

- Monocrystalline photovoltaic module with 60 156 x 156 mm (6"), n-type
- Anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Test resist. ammoniaca	Factory inspection	PV Cycle	Cobat
	✓	-	✓	✓	✓	✓	-	-	✓

Code		YL 260 M	YL 265 M	YL 270 M	YL 275 M	YL 280 M
Nominal power	Wp	260	265	270	275	280
Open circuit voltage (Voc)	V	38,6	39,0	39,0	-	-
Short circuit current (Isc)	A	8,91	8,93	9,06	-	-
Voltage at max power (Vmp)	V	30,8	31,0	31,1	-	-
Current at max power (Imp)	A	8,46	8,55	8,68	-	-
Maximum fuse rating	A	20	20	20	-	-
Module conversion efficiency	%	15,9	16,2%	16,5%	-	-
NOCT	°C			46		
Temp. coeff. voltage (Voc)	%/°C			-0,33		
Temp. coeff. current (Isc)	%/°C			+0,04		
Temp. coeff. power (Pmax)	%/°C			-0,45		
Tolerance (Pn)	W			0/+5		
System voltage	V			1000		
Maximum load	Pa			5400		
Weight	Kg			19,5		
	(lb)			(42,99)		
Dimensions	mm			1.650 x 990 x 40		
	(inch)			(64,57 x 38,98 x 1,57")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Panasonic

HIT-H series
HIT-N series

- Monocrystalline photovoltaic module + A-Si with high efficiency cells (> 19,60%)
- Black anodized aluminium frame
- MC3 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	-	✓	-	✓	-	✓	✓

Code		VBH-H250E01	VBH-N240SE10
Nominal power	Wp	250	240
Open circuit voltage (Voc)	V	43,1	52,4
Short circuit current (Isc)	A	7,74	5,85
Voltage at max power (Vmp)	V	34,90	43,7
Current at max power (Imp)	A	7,18	5,51
Maximum fuse rating	A	15	15
Module conversion efficiency	%	18	19
NOCT	°C	46	44
Temp. coeff. voltage (Voc)	V/°C	-0,108	-0,131
Temp. coeff. current (Isc)	mA/°C	+2,32	+1,75
Temp. coeff. power (Pmax)	%/°C	-0,30	-0,30
Tolerance (Pn)	%	+10/-5	-10/-5
System voltage	V	1000	
Maximum load	Pa	5400	
Weight	Kg	16,50	15
	(lb)	(36,38)	(33,07)
Dimensions	mm	1.610 x 861 x 35	1.580 x 798 x 35
	(inch)	(63,38 x 3,9 x 1,38")	(62,2 x 31,42 x 1,38")

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SF-S series

- Thin film photovoltaic modules with CIS technology
- Black anodized aluminium frame
- MC4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 20 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	✓	✓	✓	✓	-	✓	

Code		SF 140-S	SF 145-S	SF 150-S	SF 155-S	SF 160-S
Nominal power	Wp	140	145	150	155	160
Open circuit voltage (Voc)	V	107	107	108	109	110
Short circuit current (Isc)	A	2,1	2,2	2,2	2,2	2,2
Voltage at max power (Vmp)	V	80,5	81	81,5	82,5	84
Current at max power (Imp)	A	1,74	1,8	1,85	1,88	1,91
Maximum fuse rating	A	7	7	7	7	7
Module conversion efficiency	%	11,4	11,8	12,2	12,6	13
NOCT	°C			47		
Temp. coeff. voltage (Voc)	%/°C			-0,3		
Temp. coeff. current (Isc)	%/°C			0,01		
Temp. coeff. power (Pmax)	%/°C			-0,31		
Tolerance (Pn)	W			0/+5		
System voltage	V			1000		
Maximum load	Pa			2400		
Weight	Kg			20		
	(lb)			(44,1)		
Dimensions	mm			1.257 x 997 x 35		
	(inch)			(49,49 x 38,5 x 1,4")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

calyxo

CX3 series

- Thin film photovoltaic module, CADMIUM TELLURIDE technology (CdTe)
- Without frame (laminated)
- Y-SOL 4 connectors
- Product warranty: 10 years
- Efficiency warranty: 10 years at 90% - 25 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
	✓	✓	✓	-	✓	-	✓	✓

Code		CX3-70	CX3-72	CX3-75	CX3-77	CX3-80
Nominal power	Wp	70,0	72,5	75,0	77,5	80,0
Open circuit voltage (Voc)	V	61,1	61,5	62,0	62,5	62,8
Short circuit current (Isc)	A	1,84	1,87	1,95	1,98	2,01
Voltage at max power (Vmp)	V	44,8	45,8	46,3	46,7	47,0
Current at max power (Imp)	A	1,58	1,62	1,65	1,68	1,72
Maximum fuse rating	A	4	4	4	4	4
Module conversion efficiency	%	9,7	10,1	10,4	10,8	11,1
NOCT	°C			45		
Temp. coeff. voltage (Voc)	%/°C			-0,24		
Temp. coeff. current (Isc)	%/°C			0,02		
Temp. coeff. power (Pmax)	%/°C			-0,25		
Tolerance (Pn)	W			+2,5/-0		
System voltage	V			1000		
Maximum load	Pa			2400		
Weight	Kg			12		
	(lb)			(26,46)		
Dimensions	mm			1200 x 600 x 6,9		
	(inch)			(47,24 x 23,62 x 0,27")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SAINT-GOBAIN
SOLAR

POWERMAX-F series

- Thin film photovoltaic modules with CIS technology
- Aluminium frame torsion-resistant and corrosion-resistant
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 20 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
		✓	✓	-		-	✓	✓

Code		POWERMAX120	POWERMAX125	POWERMAX130	POWERMAX135
Nominal power	Wp	120	125	130	135
Open circuit voltage (Voc)	V	59,7	60,2	60,7	61,3
Short circuit current (Isc)	A	3,18	3,19	3,19	3,2
Voltage at max power (Vmp)	V	43,1	44	44,8	45,6
Current at max power (Imp)	A	2,79	2,85	2,91	2,97
Maximum fuse rating	A	5	5	5	5
Module conversion efficiency	%	11,2	11,6	12,1	12,6
NOCT	°C		39,3		
Temp. coeff. voltage (Voc)	%/°C		-0,36		
Temp. coeff. current (Isc)	%/°C		0,001		
Temp. coeff. power (Pmax)	%/°C		-200		
Tolerance (Pn)	W		0/+4		
System voltage	V		1000		
Maximum load	Pa		5400		
Weight	Kg		19,6		
	(lb)		(43,21)		
Dimensions	mm		672 x 1595		
	(inch)		(26,45 x 62,79")		

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SAINT-GOBAIN
SOLAR

POWERMAX-L series

- Thin film photovoltaic modules with CIS technology
- Without frame (laminated)
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 20 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
		✓	✓	-		-	-	-

Code		POWERMAX110L	POWERMAX115L	POWERMAX120L
Nominal power	Wp	110	115	120
Open circuit voltage (Voc)	V	56,7	57,4	58,1
Short circuit current (Isc)	A	3,23	3,25	3,26
Voltage at max power (Vmp)	V	40,2	41,4	42,5
Current at max power (Imp)	A	2,74	2,78	2,82
Maximum fuse rating	A	5	5	5
Module conversion efficiency	%	10,4	10,9	11,4
NOCT	°C		40	
Temp. coeff. voltage (Voc)	%/°C		-0,3	
Temp. coeff. current (Isc)	%/°C		0,03	
Temp. coeff. power (Pmax)	%/°C		-0,39	
Tolerance (Pn)	W		0/+4	
System voltage	V		1000	
Maximum load	Pa		5400	
Weight	Kg		16	
	(lb)		(35,27)	
Dimensions	mm		1587 x 664 x 37	
	(inch)		(62,36 x 26.14 x 1,46")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

SAINT-GOBAIN
SOLAR

POWERMAX-L series

- Thin film photovoltaic modules with CIS technology
- Without frame (laminated)
- MC4 connectors
- Product warranty: 10 years
- Linear efficiency warranty 10 years at 90% - 20 years at 80%

Certifications	IEC 61215	IEC 61646	IEC 61730	IEC 61701	MCS	Ammonia resistance test	Factory inspection	PV Cycle
		✓	✓	-		-	-	-

Code		POWERMAX125L	POWERMAX130L
Nominal power	Wp	125	130
Open circuit voltage (Voc)	V	58,8	59,5
Short circuit current (Isc)	A	3,27	3,28
Voltage at max power (Vmp)	V	43,7	44,9
Current at max power (Imp)	A	2,86	2,9
Maximum fuse rating	A	5	5
Module conversion efficiency	%	11,9	12,3
NOCT	°C	40	
Temp. coeff. voltage (Voc)	%/°C	-0,3	
Temp. coeff. current (Isc)	%/°C	0,03	
Temp. coeff. power (Pmax)	%/°C	-0,39	
Tolerance (Pn)	W	0/+4	
System voltage	V	1000	
Maximum load	Pa	5400	
Weight	Kg	16	
	(lb)	(35,27)	
Dimensions	mm	1587 x 664 x 37	
	(inch)	(62,36 x 26.14 x 1,46")	

Standard Test Conditions: 1000w/m², AM spectrum 1.5, cells temperature 25°C.

Certifications

IEC 61215

It includes the testing of all ageing and wear parameters of the photovoltaic modules and also further tests where the modules are exposed to several "loads" and artificial environmental situations.
In particular, the following units are listed: sunlight, UV rays, external climate (changing of climate, extreme cold, extreme heat, humidity), mechanical loads (snow, pressures from windy currents, wind resistance, etc.).
The tests are considered as successful if, after they have been performed, there are no clear visual faults on the modules and the outgoing power has lowered by a value corresponding to 0 or near to 0 starting from the initial value.
The IEC 61215 certification is the actual quality symbol of the crystalline silicon photovoltaic panels, and in some countries (such as Italy) it is necessary in order to design and build photovoltaic systems and also to take advantage of the energy account incentives.

IEC 61646

The IEC 61646 certification for thin film photovoltaic modules is, in many respects, the same as IEC 61215.
The main difference consists in the different technology used to build the photovoltaic panel, which is exposed to some further tests in order to check the degradability of its performances in some radiation conditions.

IEC 61730

As for the "people's safety" and the reliability of the photovoltaic modules as regards the external mechanical stresses, the above mentioned tests were not suitable enough, thus it has been decided to certify the modules under this respect too, defining the regulations according to the IEC 61730 certification.
The standard is made up of two parts:
1) Structural requirements
2) Test requirements
The first part defines the minimum requirements necessary for the materials, the components and the design aspects.
The second part describes the test requirements.

IEC 61701

As for the modules which are going to be used in a highly corrosive atmosphere during their lifetime, the corrosion resistance must be tested especially if the installation takes place along the coastline or next to the sea.
For these tests too, the mechanical/electrical minimum requirements are tested.

MCS

This certification represents a key requirement so as to reach the incentive tariffs in Great Britain.
The MCS certification shows the quality and reliability of the products approved to comply with the rigorous standards warranting quality and high performances.

Ammonia Resistance Test

The aim of such certification is to verify the suitability of the photovoltaic module to withstand the effects of the air found in the structures for animal shelter (places rich in ammonia) for a period of at least 20 years.

PV Cycle

It is a non-profit company which was created in 2007 with the aim of starting a volunteer programme for the module collection and recycle by the photovoltaic industry. The company headquarters are in Brussels and it is made up of 107 total members. When the module lifetime is concluded, such modules are collected for free by means of several permanent collection points through a direct collection by the modules association found at a distance higher than 50 km from the nearest collection point. So far, the European countries present 183 overall collection registered points (52 in Italy) and 77 certifications (15 in Italy, and if you visit the www.pvcycle.org website you can find the nearest collection point through a special search engine.

Factory Inspection

It is a necessary certification certifying that the product (module, inverter, etc.) has been manufactured within the European Union. It can be used to obtain a mark-up of 10% on the incentive tariff, as it is foreseen by the GSE in the Enforcing Regulations for the Incentive Tariffs Recognition as it is foreseen by the Ministerial Decree of the 5th of May 2011.

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